Mapping and Disposal of Irrigation Pipes for a Sustainable Management of Agricultural Plastic Waste

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**Abstract.** Plastic materials are largely used in agricultural activities. Plastic products are commonly employed as covering in greenhouses and tunnels, for soil mulching, silage, pots and containers and for irrigation and drainage pipes. The use of plastic products provides several benefits for agricultural production. However, the downside is represented by the large amount of generated agricultural plastic waste (APW). There is a need of a conscious and sustainable management of APW from an environmental and economic point of view. APW should be considered as a resource, in the optic of a circular economy. To this end, the definition of a rigorous approach for agricultural plastic detection, mapping, collection and disposal is required. In this study, the attention was focused on the irrigation pipes. An agricultural area, characterized by a variety of crops, in Apulia region (Southern Italy) was considered as case study. The paper proposes a territorial analysis, performed using a Geographical Information System (G.I.S), for mapping areas of use of irrigation pipes and of waste production from these. As a result, a georeferenced database and the quantification of the potential waste were obtained. This allows identifying critical areas for plastic waste production due to irrigation pipes and can be used as tool for planning a proper collection and disposal strategy.